### IN THE CLAIMS:

Please amend claims 1, 2 and 30, cancel claims 41 and 42 and enter new claims 43-52 according to the following replacement claim set:

1. (Currently Amended) An electrochemical method for forming a ferrate salt, comprising:

providing an aqueous hydroxide solution in fluid communication between a sacrificial ironcontaining anode and a cathode, wherein the aqueous hydroxide solution comprises a mixture of at
least two hydroxides; and

applying an electrical potential between the anode and the cathode to produce the ferrate salt.

- 2. (Currently Amended) The method of claim 1, wherein the aqueous hydroxide solution includes comprises a hydroxide selected from sodium hydroxide, potassium hydroxide, lithium hydroxide, cesium hydroxide, barium hydroxides, and combinations thereof.
- 3. (Original) The method of claim 1, wherein the aqueous hydroxide solution comprises one or more alkali earth metal hydroxides.
- 4. (Original) The method of claim 1, wherein the aqueous hydroxide solution comprises one or more alkaline earth metal hydroxides.
- 5. (Original) The method of claim 1, wherein the aqueous hydroxide solution comprises an alkaline earth metal hydroxide and an alkali earth metal hydroxide.
- 6. (Original) The method of claim 1, wherein the aqueous hydroxide solution has a hydroxide concentration between about 1 molar and about 30 molar.
- 7. (Original) The method of claim 1, wherein the aqueous hydroxide solution has a hydroxide concentration of between about 5 molar and 20 molar.

- 8. (Original) The method of claim 1, wherein the aqueous hydroxide solution has a hydroxide concentration of between about 10 molar and about 20 molar.
- 9. (Original) The method of claim 1, wherein the aqueous hydroxide solution comprises sodium hydroxide and potassium hydroxide.
- 10. (Original) The method of claim 9, wherein the sodium hydroxide and the potassium hydroxide are provided at about a one-to-one molar ratio.
- 11. (Original) The method of claim 9, wherein the aqueous hydroxide solution has a molar ratio of potassium hydroxide to sodium hydroxide between about 1 and about 3.
- 12. (Original) The method of claim 9, wherein the aqueous hydroxide solution has a molar ratio of potassium hydroxide to sodium hydroxide up to about 5.
- 13. (Original) The method of claim 9, wherein the aqueous hydroxide solution comprises between about 5 molar and about 15 molar NaOH and between about 5 molar and about 15 molar KOH.
- 14. (Original) The method of claim 1, further comprising:
  providing the aqueous hydroxide solution at a temperature between about 10°C and about 80°C.
- 15. (Original) The method of claim 1, further comprising:

  providing the aqueous hydroxide solution at a temperature between about 30°C and 40°C.
- 16. (Original) The method of claim 1, further comprising:
  providing the aqueous hydroxide solution to the anode and the cathode in a manner selected

from batch, continuous, semi-batch, and combinations thereof.

- 17. (Original) The method of claim 1, wherein the anode has an iron content of between 90% and 100%.
- 18. (Original) The method of claim 1, wherein the anode has an iron content greater than about 99%.
- 19. (Original) The method of claim 1, wherein the anode is selected from iron, cast iron, malleable iron, ductile iron, carbon steel, stainless steel and combinations thereof
- 20. (Original) The method of claim 1, wherein the anode has a configuration selected from expanded metal mesh, wire mesh, woven metal cloth, flat plate, rod and combinations thereof.
- 21. (Original) The method of claim 1, wherein the cathode is selected from iron, iron alloys, nickel, nickel alloys, and carbon.
- 22. (Original) The method of claim 1, wherein the cathode is selected from iron, cast irons, malleable iron, ductile iron, carbon steels, stainless steels and combinations thereof.
- 23. (Original) The method of claim 1, wherein the cathode is selected from nickel, nickel-molybdenum alloys, nickel-vanadium alloys and combinations thereof.
- 24. (Original) The method of claim 1, wherein the cathode has a configuration selected from expanded metal mesh, wire mesh, woven metal cloth, flat plate, rod and combinations thereof.
- 25. (Original) The method of claim 1, wherein the anode has a shape selected from arcuate or cylindrical, and wherein the cathode is positioned along an axis of the anode.

- 26. (Original) The method of claim 1, wherein the electrical potential induces an anode current density of between about 1 mA/cm<sup>2</sup> and 100 mA/cm<sup>2</sup>.
- 27. (Original) The method of claim 1, wherein the electrical potential induces an anode current density of between about 20 mA/cm<sup>2</sup> and 40 mA/cm<sup>2</sup>.
- 28. (Original) The method of claim 1, wherein the electrical potential induces an anode current density of between about 1 mA/cm<sup>2</sup> and 50 mA/cm<sup>2</sup>.
- 29. (Original) The method of claim 1, wherein the electrical potential induces a current type selected from direct current, sinusoidal current, or a combination of sinusoidal current superimposed on a direct current carrier.
- 30. (Currently Amended) An electrochemical method for forming a ferrate salt, comprising:

  providing an aqueous hydroxide solution in fluid communication between an anode and a
  cathode, wherein the aqueous hydroxide solution comprises a mixture of at least two hydroxides;

providing ferric ions in the aqueous hydroxide solution, wherein the ferric ions are provided by a source selected from ferric salt, iron-containing metallic particles, and combinations thereof; and

applying an electrical potential between the anode and the cathode to convert the ferric ions to ferrate salt.

- 31. (Original) The method of claim 30, wherein the cathode is made of material selected from iron, nickel, carbon, and alloys or combinations thereof.
- 32. (Original) The method of claim 30, wherein the cathode is made of material selected from iron, cast irons, malleable iron, ductile iron, carbon steels, stainless steels and combinations thereof.

- 33. (Original) The method of claim 30, wherein the anode is made of material selected from iron, nickel, carbon, and alloys or combinations thereof.
- 34. (Original) The method of claim 30, wherein the anode is made of material selected from iron, cast irons, malleable iron, ductile iron, carbon steels, stainless steels and combinations thereof.
- 35. (Original) The method of claim 30, wherein the electrical potential induces a current selected from direct current, alternating current, and a combination thereof.
- 36. (Original) The method of claim 30, wherein the electrical potential induces a sinusoidal current superimposed on a direct current carrier.
- 37. (Original) The method of claim 30, wherein the aqueous hydroxide solution comprises one or more hydroxides selected from sodium hydroxide, potassium hydroxide, lithium hydroxide, cesium hydroxide, barium hydroxides, and combinations thereof.
- 38. (Original) The method of claim 30, wherein the aqueous hydroxide solution comprises two or more hydroxides selected from sodium hydroxide, potassium hydroxide, lithium hydroxide, cesium hydroxide, barium hydroxides, and combinations thereof.
- 39. (Original) The method of claim 30, wherein the aqueous hydroxide solution comprises sodium hydroxide and potassium hydroxide.
- 40. (Original) The method of claim 30, further comprising:

providing the aqueous hydroxide solution to the cell in a manner selected from batch, continuous, semi-batch, and combinations thereof.

#### 41-42. (Cancelled)

- 43. (New) The method of claim 1, wherein the electrical potential induces a sinusoidal current superimposed on a direct current carrier.
- 44. (New) The method of claim 30, wherein the electrical potential induces a sinusoidal current superimposed on a direct current carrier.
- 45. (New) The method of claim 1, further comprising:

providing the aqueous hydroxide solution to the anode and the cathode in a manner selected continuous, semi-batch, and combinations thereof.

46. (New) The method of claim 30, further comprising:

providing the aqueous hydroxide solution to the anode and the cathode in a manner selected continuous, semi-batch, and combinations thereof.

- 47. (New) The method of claim 1, wherein the aqueous hydroxide solution comprises a mixture of two or more hydroxides selected from sodium hydroxide, potassium hydroxide and lithium hydroxide.
- 48. (New) The method of claim 1, wherein the aqueous hydroxide solution comprises sodium hydroxide and lithium hydroxide.
- 49. (New) The method of claim 1, wherein the aqueous hydroxide solution comprises potassium hydroxide and lithium hydroxide.
- 50. (New) The method of claim 1, wherein the anode and the cathode are disposed in a single chamber.

- 51. (New) The method of claim 50, wherein there is no separator between the anode and the cathode.
- 52. (New) The method of claim 1, wherein the aqueous hydroxide comprises at least two hydroxides that are not barium hydroxide.
- 52. (New) An electrochemical method for forming a ferrate salt, comprising:

providing an aqueous hydroxide solution in fluid communication between a sacrificial ironcontaining anode and a cathode, wherein the aqueous hydroxide solution comprises sodium hydroxide and one or more hydroxides selected from potassium hydroxide, lithium hydroxide, calcium hydroxide, magnesium hydroxide, strontium hydroxide, barium hydroxide and cesium hydroxide; and

applying an electrical potential between the anode and the cathode to produce the ferrate salt...

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